

Urgent laparotomy and salpingectomy secondary to ectopic pregnancy in a patient requiring VA ECMO after ventricular fibrillation cardiac arrest at home

Alexandra Tsivitis DO¹, Derek Atkinson, MD¹, Naomi Nguyen BS², Andrew Feit, MD FASA¹

1. Department of Anesthesiology, 2. Renaissance School of Medicine, Stony Brook University, Stony Brook, NY, 11794

Introduction

ECMO functions as an artificial cardiopulmonary system to stabilize patients for further medical treatment and recovery. Low volume status can lead to difficulty maintaining ECMO flows and blood loss should be suspected. This ultimately led to a diagnosis of ruptured ectopic pregnancy.

Case Description

- 36F G2P1 at 8 weeks gestation with a past medical history of palpitations and NSVT presented to SBUH after a witnessed cardiac arrest at home.
- CPR in the field led to ROSC upon arrival to the ED where she was placed on VA ECMO for cardiogenic shock and malignant arrhythmia.
- The patient underwent cardiac catheterization which showed patent coronaries and Takotsubo cardiomyopathy with an ejection fraction (EF 10%).
- Initial ECMO conditions were complicated by “chatter” and suspected acute blood loss with hemoglobin nadir of 5g/dL.
- After stabilization, the patient was noted to have a distended abdomen with a large amount of intrabdominal fluid demonstrated on POCUS, as well as no intrauterine pregnancy with beta hCG above discriminatory zone, suspicious for ruptured ectopic pregnancy.
- The patient subsequently underwent exploratory laparotomy with evacuation of 3-4L hemoperitoneum and unilateral salpingectomy.
- The patient was transitioned to VV ECMO POD1, and decannulated and extubated POD3 with an EF 70%.

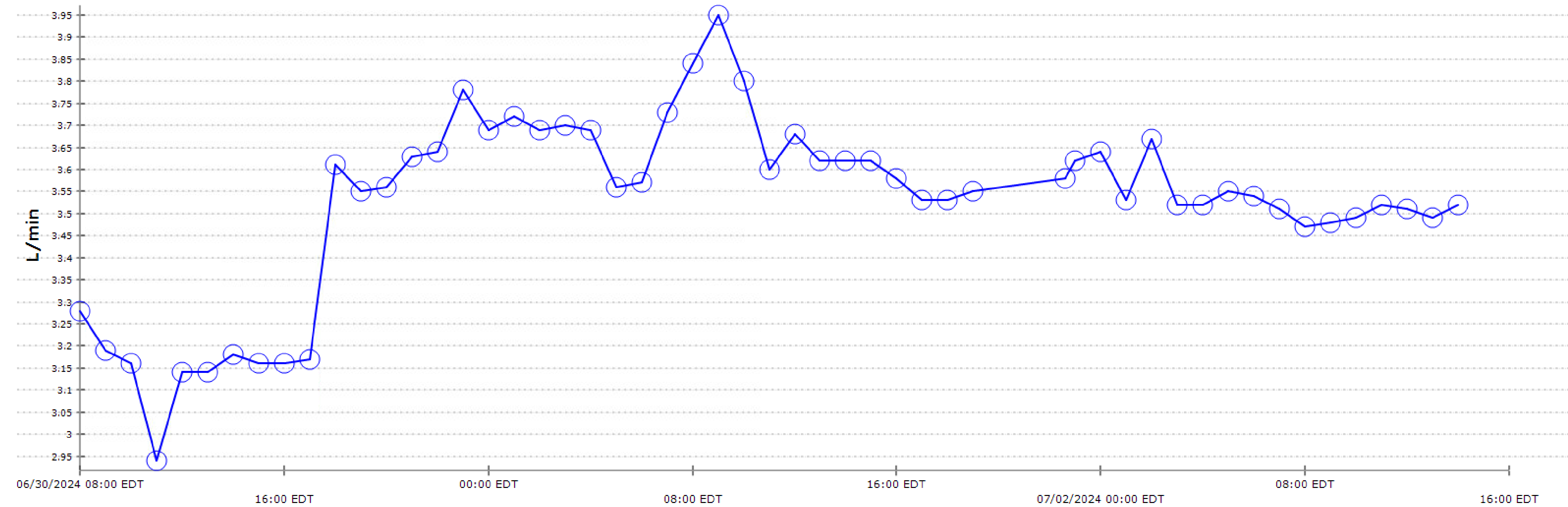
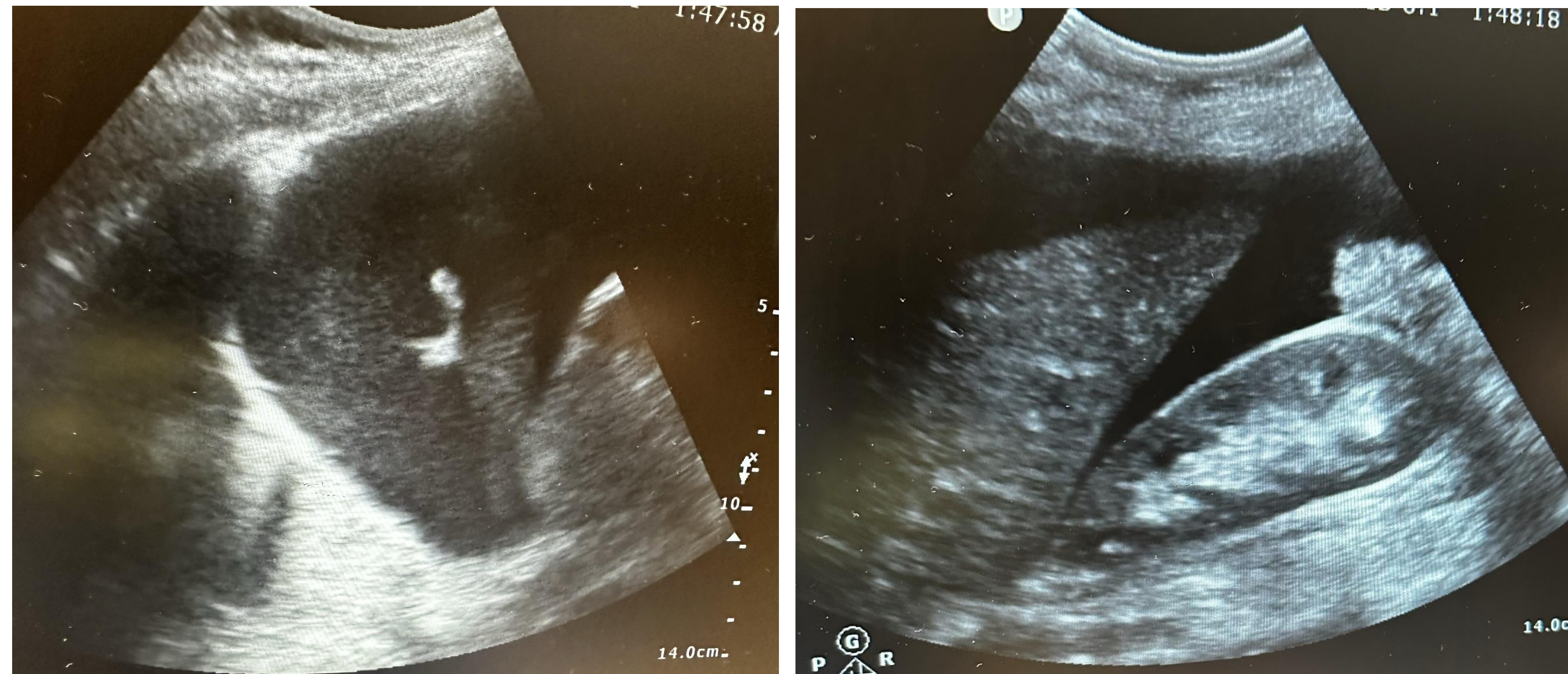


Figure 1. ECMO flows preoperatively and postoperatively. Vitals at time of POCUS: SpO2 91% (FiO2 100), BP 116/65 (1-2mcg/min nor), HR 76 (dobutamine 4 mcg/kg/min, amiodarone 0.5mcg/min).



Figures 2 and 3. POCUS images of the abdomen taken in the CTICU showing intrabdominal fluid in Morrison's pouch, suggestive of ruptured ectopic pregnancy in conjunction with beta hCG above discriminatory zone.

Discussion

ECMO in pregnancy is rare. Acute respiratory distress syndrome is the most common indication, followed by cardiogenic shock and rarely, cardiac arrest [1]. A recent literature search describes 2.2% of cases requiring ECLS in the first trimester of pregnancy, with most patients being placed on VV ECMO [2]. Takotsubo cardiomyopathy occurs under conditions of extreme stress and is characterized by a temporary, often reversible stunning of the myocardium. A potential underlying cardiac condition and stress from acute blood loss and cardiac arrest likely precipitated the stress cardiomyopathy in this patient.

The most common complication reported in pregnant patients requiring ECMO was major bleeding requiring large volumes of packed red blood cell transfusion [2]. Intraoperative management of our patient required diligent resuscitation with packed red blood cells, fresh frozen plasma, platelets, and cryoprecipitate. Resuscitation efforts along with resolution of her intrabdominal bleeding likely contributed to the improvement of her clinical status and ability to ultimate extubation and decannulation.

References

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